

Satellite Scatterometer Observations of the Arabian Sea Somali Jet

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ABSTRACT

The low-level Somali Jet originates in June - September in the central and eastern South Indian Ocean. In the Southern Hemisphere it blows toward to the northwest. Upon crossing the equator, it blows to the northeast because of Earth's rotation and deflection by the highlands of east Africa. In the Arabian Sea the Somali Jet blows toward the northeast with monthly mean speeds greater than 15 m s^{-1} , which represent the largest summer wind speeds throughout the Northern Hemisphere and which are nearly the same as those during winter in the Southern Hemisphere. The historical absence of adequate sampling of winds from ships restricted our understanding of the Arabian Sea Somali Jet. Only recently have adequate surface wind data become available to describe the onset of the Somali Jet in the Arabian Sea and pulsations of the Somali Jet.

The unique data recorded by the NASA scatterometer (NSCAT) provided a first-look of the Arabian Sea Somali Jet with time and space scales as small as 2 days and $100 \text{ km} \times 100 \text{ km}$. NSCAT showed how surface wind convergence in the eastern Arabian Sea increased three-fold with the onset of the Somali Jet, and the increased wind convergence was associated with a correspondingly large increase in the amount of liquid water in the atmosphere.

The even-more unique data recorded by the NASA Quik-scatometer (Quikscat) allows investigation of daily features of the Somali Jet at $100\text{-km} \times 100\text{-km}$ resolution. Several weekly Somali Jet pulsations and the influence of rain on the analysis will be described with Quikscat data recorded during the 1999 southwest monsoon.